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THE AMPHIBIANS AND REPTILES COLLECTED BY
THE BRYANT WALKER EXPEDITION TO
SCHOOLCRAFT COUNTY, MICHIGAN.

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Through the generosity of Dr. Bryant Walker, Honorary Curator of Mollusca, the Museum was enabled to investigate the fauna of a part of Schoolcraft County, in the northern peninsula of Michigan, during the summer of 1915.¹ The region studied was on the Manistique River, about twenty miles northeast of Manistique, and included sections 11, 12, 13, 14 and 23, T. 43 N., R. 14 W., and section 7, T. 43 N., R. 13 W. The work on the amphibians and reptiles was done by the director of the expedition, Dr. Alexander G. Ruthven, and

¹A general account of this expedition will be given in the annual report of the director of the Museum for 1915-1916.

the writer, by the former during the first three weeks in July, by the latter during the first two weeks in August.

Although the locality selected had been partially lumbered, it was favorable for study as the conditions were otherwise undisturbed and it was almost uninhabited. The reptile-amphibian fauna was meager but an effort was made to work thoroughly all of the habitats so that the list of species is probably nearly complete. One species, *Clemmys insculpta*, was added to the known fauna of the state.²

The country about the Manistique River is a sandy plain with alternating swamps and sand ridges. In the northern part of the region, near Meesic Lake, there are morainal ridges, two of which were studied. The flora of the plains may be divided roughly into three types, the river flood-plain, swamp, and sand ridge types. The flood-plain forest is dominated by the maple, yellow birch, elm, balsam and hemlock. The swampy areas subjected to flooding are occupied largely by grasses and sedges and are fringed with tag alder. The wooded swamps are of two general kinds, those dominated by the arbor-vitae and those occupied by the tamarack, white spruce, balsam, jack pine, and associated bog plants. The sand ridges were evidently originally clothed with the white pine forest, but this has been largely removed and the forest now consists of jack pine, paper birch, poplar, balsam, hemlock, white spruce and tamarack with a few white pines. On the moraines the beech, maple, yellow birch and basswood are the dominant trees.

The Manistique River, about a hundred feet wide at this point, is a swiftly flowing stream, which varies rapidly in depth and meanders greatly. While the banks are usually high, there are frequent depressions representing the ends of

² Occ. Papers Museum of Zool., Univ. of Mich., No. 12.

former channels. There are two large tributary streams, Bear Creek and Buschwahr Creek, in the region studied, and several smaller ones; like the river, they have considerable current and little vegetation. The only large body of quiet water is Meesic Lake, in the northern part of the area, which is about a mile and a half long and a mile wide and is margined on three sides by spruce swamps and on the other by a ridge clothed with a forest of hardwoods. The small bodies of quiet water are beaver ponds, varying in size and depth, and small, stagnant ox-bow ponds cut off from the river, which are filled with water plants.

The habitats frequented by the reptiles and amphibians, as revealed by our studies, are shown in the following table.

Aquatic habitats.

River and creeks. Mud puppy, leopard frog, green frog, snapping turtle, painted turtle.

Ponds and lakes. Leopard frog, green frog, mink frog, snapping turtle.

Semi-aquatic habitats.

Wooded swamps. Wood frog, green frog, peeper, leopard frog, garter snake.

Grass and sedge swamps. Leopard frog, green frog, garter snake, wood tortoise.

Land habitats.

Sand ridges. Red-backed salamander, toad, green snake, red-bellied snake, garter snake.

Hardwood ridges (not exhaustively studied). Red-backed salamander, toad.

Flood-plain of the river. Toad, wood frog, leopard frog, garter snake, green snake, red-bellied snake.

LIST OF SPECIES.

1. *Necturus maculosus* Raf. Mud Puppy.—A single immature mud puppy was collected from the Manistique River.
2. *Plethodon erythronotus* (Green). Red-backed Salamander.—Common in decayed logs on the hardwood ridges, more rare on the sand ridges. Eggs in a late stage of development were taken on August 10.
3. *Bufo americanus* LeConte. American Toad.—Abundant in all land habitats.
4. *Hyla pickeringii* Holbrook. Spring Peeper.—Numerous recently transformed individuals were observed in the grass about the edge of the marshes and swamps.
5. *Rana pipiens* Schreber. Leopard Frog.—Commonly found about the marshes and swamps.
6. *Rana clamitans* Latreille. Green Frog.—This was the most common frog of the region. It was especially abundant in the creeks and ponds. Many of the specimens show little or no trace of the dorso-lateral folds, but the feet are webbed as in typical *R. clamitans*.
7. *Rana cantabrigensis* Baird. Wood Frog.—Not uncommon in the vicinity of water. Frequently found under logs and loose bark on the river bank, and in numbers in the forest pools.
8. *Rana septentrionalis* Baird. Mink Frog.—This species was closely confined to Meesic Lake, where it was fairly abundant. Occasional specimens were observed in temporary pools on the flood-plain of the river. The song is a hoarse metallic "clack."
9. *Storeria occipitomaculata* (Storer). Red-bellied Snake.—Found commonly in decayed logs and under boards in clearings on the sand ridges. The stomach of one specimen contained several slugs.

10. *Liopeltis vernalis* (DeKay). Green Snake.—Not uncommon in dry, open woods and clearings.

11. *Thamnophis sirtalis* (Linn.). Garter Snake.—Found in both wet and dry habitats. It was most characteristic, however, of dry clearings on the sand ridges.

12. *Chelydra serpentina* (Linn.). Snapping Turtle.—Rather uncommon but not rare. A large female contained thirty-seven eggs.

13. *Chrysemys bellii* Gray. Bell's Painted Turtle.—Common in the river; a few were observed in large beaver ponds. The single specimen collected is so dark that the coloration is obscure, and the plastronal blotch is small as in *C. cinerea*. However, the blotch extends on the sutures to the edge of the plastron so the specimen is evidently an aberrant *C. bellii*.

14. *Clemmys insculpta* (LeConte). Wood Tortoise.—Apparently not rare. The species is evidently partially aquatic in this region since the eleven specimens secured were all taken in swales or on the margin of the river.